This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A wafer engine for moving semiconductor workpieces, comprising:

a linear drive assembly having a carriage, said linear drive assembly for moving said carriage between a first position and a second position along a first linear path, said first linear path defining an x-axis;

~~a base mounted to said carriage;~~

a support column having a first end and a second end;

a rotational drive ~~housed within said base~~ mounted to said carriage and affixed to said first end of said ~~having a~~ support column ~~that extends out of said base~~, said rotational drive adapted to rotate said support column about a longitudinal central axis of said support column, said longitudinal central axis defining a theta axis;

a z-axis drive housing having a base portion and an elongated body, said base portion mounted to said second end of said support column such that said rotational drive rotates said z-axis drive housing about said theta axis;

a z-axis drive assembly housed substantially within said elongated body, said z-axis drive assembly adapted to move between a first position and a second position along a second linear path, said second linear path defining a z-axis that is offset from said theta axis; and

a radial drive housing mounted to said z-axis drive assembly, said radial drive housing enclosing a radial drive assembly adapted to move an end effector between a first position and second position along a third linear path, said third linear path defining a radial axis.

2. (Previously Cancelled)

3. (Currently Amended) The wafer engine as recited in claim 1 ~~2~~, wherein said rotational drive simultaneously rotates said z-axis drive housing and said radial drive housing about said theta axis.

4. (Currently Amended) The wafer engine as recited in claim 1, wherein said ~~base~~ radial drive further includes an exhaust device.

5. (Currently Amended) The wafer engine as recited in claim 4, wherein said exhaust device ~~is for drawing~~ draws air located within said elongated body through ~~z-axis drive housing though~~ said base portion and said support column and ~~venting~~ vents the air out of said exhaust device ~~base~~.

6. (Previously Amended) The wafer engine as recited in claim 1, wherein said radial drive housing is removably mounted to said z-axis drive assembly.

7. (Previously Amended) The wafer engine as recited in claim 6, wherein said radial drive housing includes at least one component selected from the group consisting of (i) an ID reader, (ii) a metrology tool, (iii) an aligner, (iv) a notch detector, (v) an edge detector, (vi) a wafer marking tool, (vii) a processing module, (viii) a wafer viewing, and (ix) an environmental control device.

8. (Previously Amended) The wafer engine as recited in claim 1, further including a fan/filter unit mounted to said radial drive housing, said fan/filter unit for drawing air into said radial drive housing and filtering the air before venting the air out of said radial drive housing.

9.-10. (Previously Cancelled)

11. (Currently Amended) A wafer engine for transporting semiconductor wafers, comprising:

a first drive assembly providing motion between a first position and a second position along a first linear path, said first linear path defining an x-axis;

~~a base mounted to said first drive assembly, said base having a bore~~;

a support column having a first end and a second end;

a rotational drive ~~seated within said bore~~ mounted to said first drive assembly and affixed to said first end of said support column, said rotational drive adapted to rotate said support column about a longitudinal central axis of said support column ~~rotational drive~~, said longitudinal central axis defining a theta-axis;

a z-axis drive housing having an elongated vertical body and a base portion extending substantially perpendicular from said elongated vertical body and affixed to said

second end of said support column, said z-axis drive housing containing a z-axis drive assembly adapted to move within said elongated vertical body along a second linear path, said second linear path defining a z-axis that is offset from and substantially parallel to said theta-axis;

~~a support column secured to said base portion and said rotational drive, said support column adapted to rotate about said theta axis;~~

a radial drive housing removably mounted to said z-axis drive assembly, said radial drive housing ~~containing~~ enclosing a radial drive assembly adapted to move between a first position and a second position ~~within said radial drive housing~~ along a third linear path, said third linear path defining a radial axis; and

an end effector mounted to said radial drive assembly.

12. (Previously Cancelled)

13. (Previously Amended) The wafer engine as recited in claim 11, wherein said radial drive housing includes at least one component selected from the group consisting of (i) an ID reader, (ii) a metrology tool, (iii) an aligner, (iv) a notch detector, (v) an edge detector, and (vi) a wafer marking tool.

14. (Previously Cancelled)

15. (Currently Amended) A wafer engine for handling semiconductor wafers, comprising:

means for providing linear motion between a first position and a second position;

a slide body substantially enclosing said means for providing linear motion between said first position and said second position;

an end effector mounted to said means for providing linear motion between said first position and said second position, said end effector adapted to support a semiconductor wafer ~~seated on said end effector in a substantially horizontal orientation~~;

means for moving said slide body between a third position and a fourth position along a vertical linear path, said vertical linear path defining a z-axis;

means for simultaneously rotating said slide body and said means for moving said slide body between a third and fourth position about a theta axis that is offset from said z-axis; and

a fan/filter device mounted to said slide body, said fan/filter device for drawing air into said slide body and filtering the air prior to venting the air back out of said slide body.

16-18. (Previously Cancelled)

19-23. (Canceled)

24. (New) The wafer engine recited in claim 1, wherein said theta axis does not intersect any portion of said radial drive housing.